

ASIOLA, A NEW AUSTRALIAN GENUS OF THE SUBFAMILY
ASILINAE (DIPTERA : ASILIDAE).

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Synopsis

Asiola gen. nov., with type species *Asilus blasio* Walker is described and a key presented for separation of three new species : *Asiola atkinsi*, *A. lemniscata* and *A. fasciata*. Prey is recorded for *A. fasciata*.

INTRODUCTION

During a revision of the Australian robber fly genus *Neoaratus* Ricardo, *N. blasio* (Walker) was found to differ fundamentally from typical *Neoaratus* species to an extent that warranted generic separation. Examination of specimens from eastern and western Australia that had formerly been cited as *blasio* showed that two distinct species were present, and two other species were discovered in collections.

Asilus blasio was described from a single male collected by G. Clifton at Perth, Western Australia. Ricardo (1913) recorded 2 males and 6 females from the Dandenong Range, Victoria, and redescribed the species. Hardy (1920) recorded a series of each sex collected at Blackheath, New South Wales in November 1919, adding that specimens from eastern Australia may not be conspecific with those from Western Australia. Hardy (1935) transferred all Australian species of *Asilus* Linné to *Neoaratus* without distinguishing between the two genera. Hull (1962) returned *blasio* to *Asilus*, even though the species would not run to *Asilus* or *Neoaratus* in his key.

ASIOLA gen. nov.

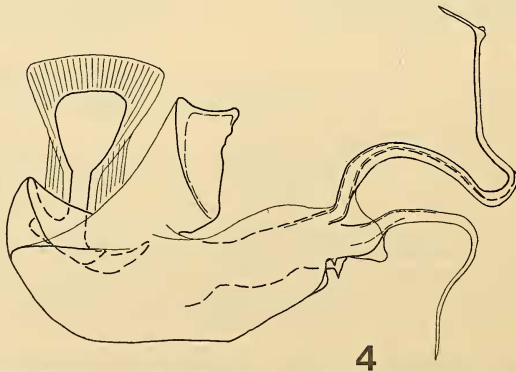
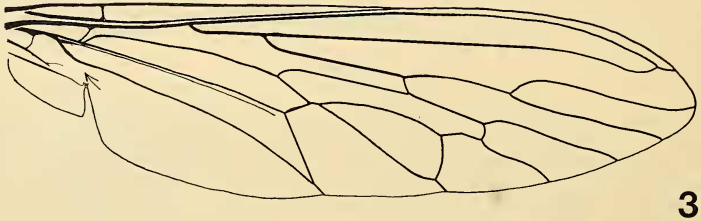
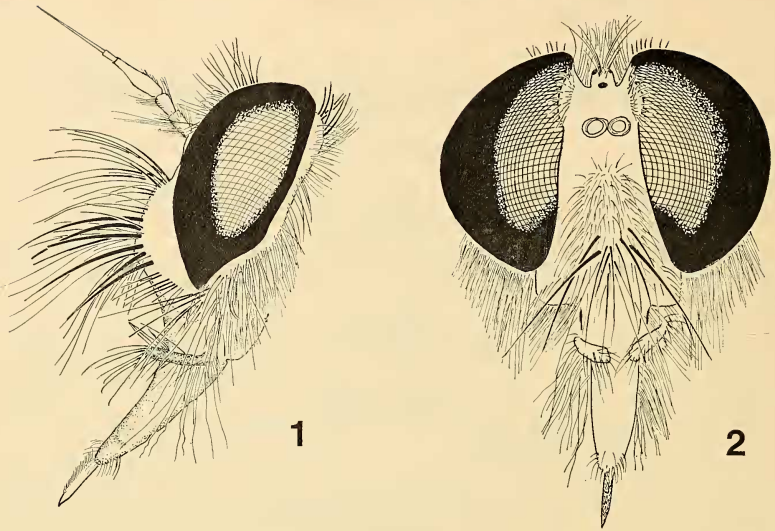
Medium sized flies recognised by the combination of: bare metanotal callosity; facial gibbosity arising abruptly above middle of face and extending along lower two thirds of face; scutellum with at least 2 pairs of long marginal bristles, disc hairy; fourth posterior cell and anal cell short-petiolate; veins R_4 and R_5 parallel for most of their lengths (Fig. 3); ovipositor not laterally compressed; female ninth sternite keeled distally; aedeagus with a pair of basal filament-like processes (Fig. 4); tergites 1-3 with bristle-like hairs which are only distinct because of the absence of long hairs nearby.

Type species. *Asilus blasio* Walker.

Distribution (Map 1). Recorded from all states except Tasmania and the Northern Territory. In Queensland, New South Wales, and Victoria, the genus occurs mostly in the mountainous regions, but in New South Wales is also found in the Western Slopes and Plains.

COMPARATIVE NOTES. *Asiola* is distinguished from *Neoaratus sensu stricto* by its much smaller size, bare metanotal callosity, bristled scutellar margin, scutellar disc with long hairs, moderately hairy legs, veins R_4 and R_5 parallel for most of their lengths, second posterior cell only slightly wider than discal cell, marginal cell not expanded in males, and female eighth tergite tapered, not cup-like. From *Neoitamus* Osten Sacken, to which *Asiola* may have closer affinities, it is distinguished by the long, high facial gibbosity, and the form of the female ovipositor which lacks any degree of lateral compression.

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Figs 1-4 *Asiola fasciata*. 1. Head, laterally. 2. Head, anteriorly. 3. Wing. 4. Aedeagus.

Collections in which examined material is located are indicated by the following abbreviations; AM Australian Museum, Sydney; ANIC Australian National Insect Collection, Canberra; GD Author's Collection; NMV National Museum of Victoria, Melbourne; SAM South Australian Museum, Adelaide; UQ University of Queensland, Brisbane; WAD West Australian Department of Agriculture, Perth.

KEY TO SPECIES OF *Asiola*

1. Fore femur basally with a black anterior spot, or entire anterior surface black 2
Fore femur without any black marking 3
2. Yellow and black species. Femora orange-red with a variable black anterior marking.
Qld, N.S.W., Vic. *fasciata* sp.n.
Grey and black species. Femora entirely black anteriorly, mostly yellow posteriorly.
S.A., W.A. *lemniscata* sp.n.
3. Mesoscutum golden-yellow; wide median line and dorsocentral area black; humeral callosity, anepisternite, pteropleuron, pleurotergite and metanotal callosity golden yellow. Hind femur with apical third black.
W.A. *blasio* (Walker)
Mesoscutum yellow-grey, dorsocentral area black, variable; pleura yellow-grey. Hind femur with a black anterior line on apical half, sometimes along full length.
Qld. *atkinsi* sp.n.

Asiola fasciata sp. nov.

Figs 1-6, 13

Asilus blasio, Ricardo, 1913 : 444; Hardy, 1920 : 257, fig. 9; Hardy, 1923 : 175; Hull, 1962 : 546.

Neoaratus blasio, Hardy 1935 : 186, (part).

Holotype. ♂ (AM), Blackheath, N.S.W., 14.xi.1919, G. H. Hardy.

Paratypes. NEW SOUTH WALES: Blackheath: 1 ♀ (AM), 13.xi.1919; 1 ♂, 1 ♀ (NMV), 16.xi.1919; 1 ♀ (AM), 21.xi.1919, G. H. Hardy; 1 ♂ (NMV), x.1930, F. E. Wilson; 2 ♂, 1 ♀ (NMV), 3.xii.1946, A. N. Burns; 1 ♀ (ANIC), Mount Boppy, near Cobarr, 25.xi.1949, S. J. Paramonov; 1 ♂ (GD), Burning Mountain, near Scone, 31.x.1976, G. Daniels; 3 ♂ (GD), Goonoo State Forest, 5 miles S of Mendooran, 4.x.1970, G. Daniels; 1 ♀ (GD), Mount Bell, Blue Mountains, 12.x.1975, G. Daniels; 1 ♂, 1 ♀ (ANIC), 9 miles SSW of Portland, 1.xii.1948, K. H. L. and B. Key; 1 ♀ (GD), near Evan's Lookout, Blackheath, 16.x.1971, 1 ♂ (GD), 28.xi.1971, 1 ♂, 1 ♀ (GD), 17.xi.1973, 1 ♂, 1 ♀ (GD), 22.xi.1975, 1 ♂ (GD), Martin's Lookout, near Springwood, 23.x.1971, all G. Daniels; 1 ♂ (NMV), Wentworth Falls, x.1930, F. E. Wilson; 1 ♂ (GD), Hat Hill, near Blackheath, 24.xi.1973, G. Daniels; 1 ♂ (ANIC), Narrow Neck, Katoomba, 4.xii.1948, K. H. L. and B. Key; 1 ♂ (AM), Blue Mountains, 4.x.1915, A. Musgrave; 1 ♀ (ANIC), Woodford, 14.xii.1926, I. M. Mackerras; 12 ♂, 5 ♀ (ANIC), Canberra, 2-20.xi.1947; 1 ♂, 1 ♀ (ANIC), Canberra, 9-13.xi.1948, S. J. Paramonov; 1 ♀ (ANIC), Cotter River, 8.xii.1935, M. Fuller; 1 ♀ (ANIC), Cotter River, 22.xi.1951, H. M. Cane; 2 ♀ (ANIC), Mount Franklin, 29.ix.1949, S. J. Paramonov; 1 ♂ (ANIC), Mount Stromlo, 10.xii.1931, W. K. Hughes.

VICTORIA: 1 ♀ (NMV), Dandenong Ranges, 5.x.1922, F. P. Spry.

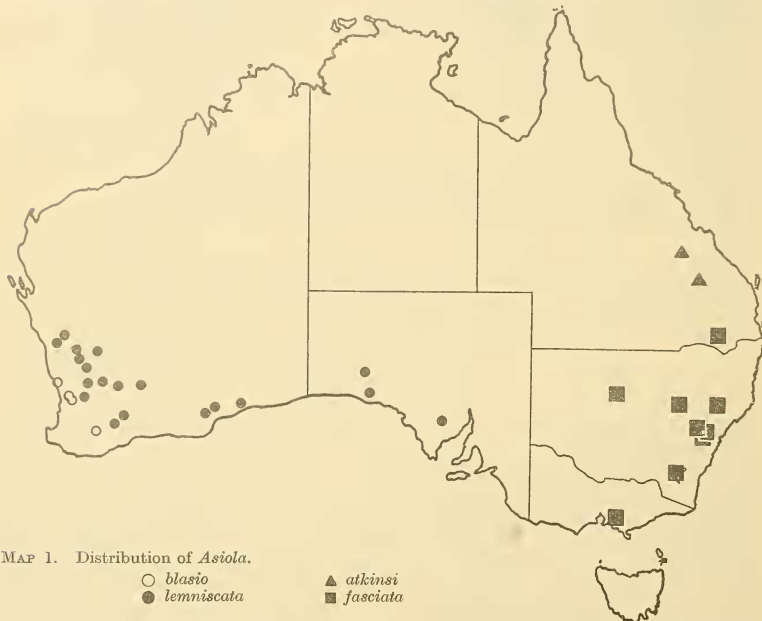
OTHER MATERIAL EXAMINED. QUEENSLAND: 1 specimen with abdomen missing (UQ), Inglewood, 4.xi.1925, F. A. Perkins.

? VICTORIA : 1 ♂ (NMV), no locality, 6.xi.1898, C. French. This last specimen bears a label "*Asilus blasio* Wlk. det by Miss G. Ricardo".

Differs from the description given for *A. lemniscata* as follows :

MALE. *Head* (Figs 1, 2). Facial gibbosity and face yellow pollinose. Relative lengths of antennal segments, 1.4-1.7 : 1.0 : 1.9-2.0 ; arista 1.9-2.0. Segment 1 with yellowish hairs laterally.

Thorax. Mesonotum black ; medial line greyish pollinose ; dorsocentral line and lateral slopes yellow pollinose ; pleura grey pollinose with a yellow tinge throughout.



MAP 1. Distribution of *Asiola*.

○ *blasio* ▲ *atkinsi*
● *lemniscata* ■ *fasciata*

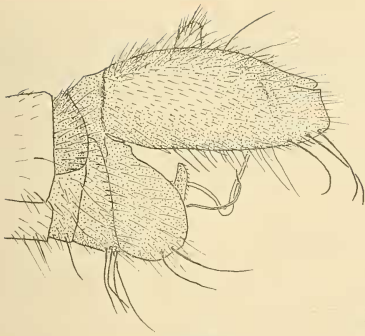
Legs. Coxae yellow-grey pollinose, white haired ; femora reddish orange ; fore femur with a black anterodorsal spot not extending past basal third of femur ; hind femur with a black anterior line on basal half, rarely longer, apically black. Tibiae black subapically, at most covering apical third. Tarsi and claws black. Hairs on legs mostly black, but with white elements scattered throughout.

Wing. Fig. 3.

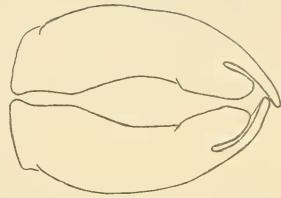
Abdomen. Yellow pollinose ; yellow haired on tergites 1-7, black along medial line ; sublateral black line indistinct on tergites 5-7. Sternites yellow-grey pollinose. Aedeagus (Fig. 4). Terminalia (Figs 5, 6).

FEMALE. Similar to male except for genitalic characteristics. Reproductive system (Fig. 13) ; spermathecae three, each with an extremely long duct.

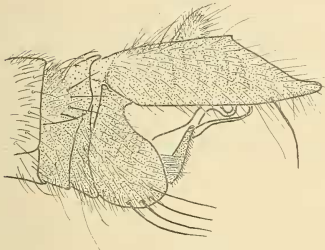
DIMENSIONS. Body length, excluding antennae, ♂ 16.5-22.0 mm, ♀ 16.7-20.5 mm ; length of thorax, ♂ and ♀, 4.5-6.0 mm ; length of wing, ♂ 10.5-14.0 mm, ♀ 11.2-14.2 mm.



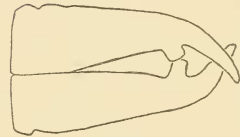
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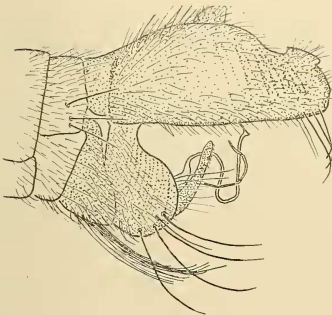
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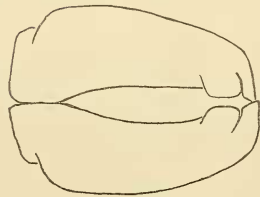
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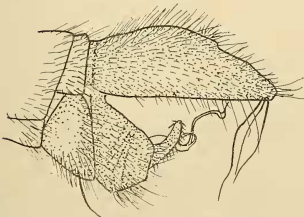
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11



12

Figs 5-12. *Asiola* sp. Male terminalia. Figs 5, 6. *A. fasciata*. Figs 7, 8. *A. blasio*. Figs 9, 10. *A. atkinsi*. Figs 11, 12. *A. lemniscata*. Odd figures are lateral views, even figures are dorsal views and have setae and bristles omitted.

HABITAT. The Blue Mountains specimens were taken in dry sclerophyll forest, with no obvious preference for cleared or timbered areas. The Burning Mountain specimen was taken on the northern slope of a hill that was completely stripped of native vegetation except for an occasional eucalypt tree. The ground cover comprised several species of grass.

PREY. 1 ♂, from Evan's Lookout, Blackheath, 17.xi.1973 with a bee, *Leioproctus* sp. (Hymenoptera : Apoidea : Colletidae). A ♀, same data, with a scarab beetle, *Diphucephala* sp. (Coleoptera : Scarabaeidae : Melolonthinae).

Asiola lemniscata sp. nov.

Figs 11, 12, 14, 15

Holotype. ♂ (ANIC), 3 miles E of Karalee, W.A., 22.ix.1952, McIntosh and Calaby.

Paratypes. WESTERN AUSTRALIA : 2 ♀ (ANIC), same data as holotype ; 1 ♀ (SAM), 2 miles S of Maya, 3.xi.1968, N. McFarland ; 1 ♂ (WAD), Trayning, 3.x.1941, "CFHJ" ; 1 ♂ (WAD), Dowerin, no date, L. J. Newman ; 1 ♂, 2 ♀ (SAM), Boonanya, x.1932, Miss Baesjow ; 1 ♂ (ANIC), 13 miles ENE of Caiguna, 14.x.1968, E. B. Britton, M. S. Upton and Balderson ; 1 ♀ (ANIC), Pithara, 29.x.1933, M. Fuller ; 1 ♀ (ANIC), Pithara, 3.x.1933, M. Fuller ; 1 ♀ (ANIC), 13 miles E of Pingrup, 1.xi.1953, J. H. Calaby ; 1 ♀ (ANIC), Balladonia, 7.viii.1952, Calaby and McIntosh ; 1 ♀ (ANIC), 10 miles W of York, 3.x.1952, Calaby and McIntosh ; 1 ♂ (ANIC), 5 miles SSE of Tardun, 16.x.1953, J. H. Calaby ; 1 ♂, 1 ♀ (ANIC), 29 miles S of Mullewa, 12.ix.1952, McIntosh and Calaby ; 2 ♀ (ANIC), Newdegate, 19.xi.1958, E. F. Riek.

SOUTH AUSTRALIA : 3 ♂, 4 ♀ (SAM), 5 miles W of Nundroo, 28.x.1968, N. McFarland ; 1 ♂, 1 ♀ (AM), Immarna, 20.x.1947, F. Calaby ; 1 ♂ (SAM), Kimba, no date, E. Broomhead.

OTHER MATERIAL EXAMINED. WESTERN AUSTRALIA : 1 ♀ (WAD), Westonia, no data. 1 ♀ (ANIC), 7 miles W of McDonalds, Mount Gibson area, 19.x.1955, J. H. Calaby.

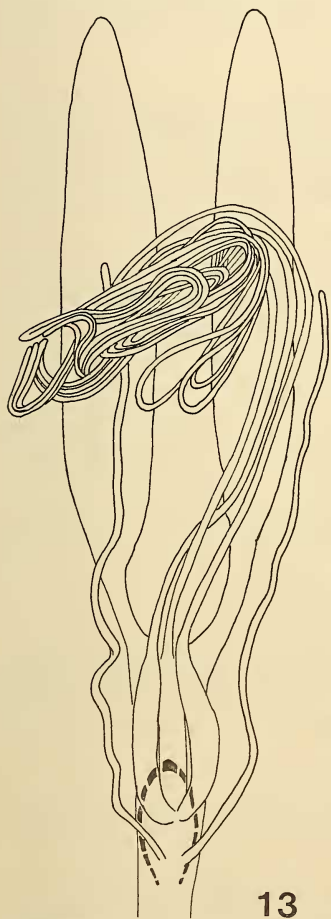
MALE. *Head.* Height 0.6–0.7 width ; width of frons at level of antennae 0.2 width of head. Length of proboscis and facial gibbosity about three fourths length of eye. Facial gibbosity white pollinose, mystax covering entire facial gibbosity ; white bristles medially, with some black elements along outer margin dorsally and ventrally. Face white pollinose. Frons grey pollinose. Antennae (Fig. 14) black, about two thirds length of eye ; segment 1 with black bristles on outer surface, ventrally much longer, some about twice as long as segment ; segment 2 with a few black hairs dorsally and ventrally ; segment 3 orange-brown basally, and with a row of pale hairs medially. Relative lengths of segments, 1.1–1.3 : 1.0 : 2.3–2.4 ; arista 1.8–1.9. Ocellar and fronto-orbital bristles black, moderately long. Palpi black with numerous black bristles and a few weaker white elements basally.

Thorax. Mesonotum black, with grey pollinose medial and dorsocentral lines ; lateral slopes grey pollinose. Pleura grey pollinose. 2 strong and 1 weak prealar bristles ; 2 or 3 postalars ; 2 strong and up to 2 weaker infra-alars ; 2 or 3 pairs of marginal scutellar bristles. Dorsocentrals present as distinct bristles on posterior slope of mesonotum, present anteriorly as weaker, shorter hairs. Metanotal callosity grey micropubescent. Halteres yellow-brown.

Legs. Coxae grey pollinose, white haired ; femora yellow, black on entire anterior surface, gradually widening to cover entire apical third. Fore and mid tibiae yellow, apical half black. Hind tibia with basal third yellow, remainder black. Tarsi black. Claws black, sometimes yellowish basally. Bristles on legs black, hairs white.

Wing. Hyaline, veins black.

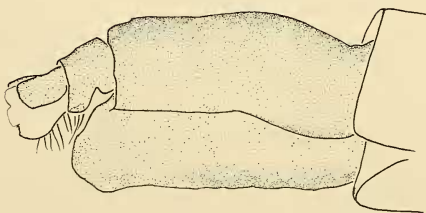
Abdomen. Grey pollinose. Tergite 1 basally white haired, posterior margin black haired except for lateral corner with up to 7 white bristles and numerous white hairs; tergites 2-7 with a broad black medial band becoming narrower



13



14



15

Figs 13-15. Fig. 13. Female reproductive system, *A. fasciata*. Figs 14, 15. *A. lemniscata*.
Fig. 14. Antenna. Fig. 15. Female terminalia (setae and bristles omitted).

posteriorly; a sublateral black line is also present but does not extend to posterior margin of each tergite; lateral tergal bristles present up to fourth tergite, being only slightly stouter than other tergal hairs. Sternites grey pollinose, white haired. Eighth segment black with a dull sheen. Terminalia (Figs 11, 12) black; lower forceps with a group of black apical bristles.

FEMALE. Similar to male except as follows :

Tergite 8 almost twice as long as tergite 7, black with a dull sheen. Terminalia (Fig. 15).

DIMENSIONS. Body length, excluding antennae, ♂ 15.0–21.0 mm, ♀ 14.5–22.0 mm; length of thorax, ♂ 4.5–6.0 mm, ♀ 4.0–5.9 mm; length of wing, ♂ 9.5–14.0 mm, ♀ 9.6–14.5 mm.

Asiola atkinsi sp. nov.

Figs 9, 10

Holotype. ♂ (AM), Blackdown Tableland, Expedition Range, Qld, 14.x.1972, A. Atkins.

Paratypes. QUEENSLAND: 1 ♀ (GD), same data as holotype. 1 ♂, 1 ♀ (GD), same locality as holotype, 8 and 9.xi.1974, G. Daniels; 1 ♂ (UQ), Isla Gorge, via Theodore, 9–10.ix.1972, G. B. Monteith.

Similar to *A. fasciata*, and differing from that species as follows :

MALE. *Head*. Height 0.7 width; frons at level of antennae 0.2 head width. Relative lengths of antennal segments, 1.3–1.5 : 1.0 : 1.9–2.0; arista 1.8. Segments 1 and 2 black haired; segment 2 subapically with a group of short white hairs ventrally. Face and facial gibbosity whitish pollinose.

Thorax. Mesonotum black, medial line greyish pollinose; dorsocentral line and lateral metanotal slopes yellow-grey pollinose. Pleura grey pollinose.

Legs. Reddish orange. Coxae black, grey pollinose, white haired. Fore femur without black basal area. Mid femur with a black anterodorsal spot on apical third. Hind femur with a black anterior line at least on apical third, widening apically to cover entire apical surface. Tibiae black subapically. Tarsi and claws black.

Abdomen. Yellow-grey pollinose, mostly yellow hairs and bristles on tergites 1–7; mostly black on tergite 8. Terminalia (Figs 9, 10).

FEMALE. Similar to male, differing as follows :

Head. Width of frons at level of antennae 0.2 head width.

Abdomen. Segment 8 shining black, black haired.

DIMENSIONS. Body length, excluding antennae, ♂ 21.5–21.7 mm, ♀ 20.5–21.2 mm, length of thorax, ♂ 5.8–6.0 mm, ♀ 5.5–6.0 mm; length of wing, ♂ 14.0 mm, ♀ 14.6–15.0 mm.

HABITAT. Dry sclerophyll forest and open heath.

Asiola blasio (Walker) comb. nov.

Figs 7, 8

Asilus blasio Walker, 1849 : 441; Walker, 1855 : 738; Kertész, 1909 : 252; Dakin and Fordham, 1922 : 520.

Neoaratus blasio, Hardy, 1935 : 186 (part).

MATERIAL EXAMINED. WESTERN AUSTRALIA : 1 ♀ (WAD), Lancelin, 12.xi.1970, K. T. Richards; 2 specimens in poor condition, both with abdomens missing (NMV), Mundaring, no date, J. Clark; 2 ♂ (ANIC), Glen Forest, 1.xii.1933, K. R. Norris; 1 ♀ (ANIC), Darlington, 1.i.1918, anon.; 1 ♂, 1 ♀ (ANIC), Mundaring Weir, 26.xii.1917, anon.; 2 ♀ (ANIC), Katanning, 2 and 12.xi.1961, K. R. Norris.

MALE. *Head*. Height 0.7 width; width of frons at level of antennae 0.2 head width; length of proboscis and facial gibbosity about three fourths length of eye. Facial gibbosity yellow pollinose; mystax white bristled medially,

with some black elements along outer margin. Face and frons yellow pollinose. Antennae black, apparently similar to *lemniscata*, but segment 3 missing. Ocellar and fronto-orbital bristles black. Palpi similar to *lemniscata*.

Thorax. Mesonotum black, with a yellow pollinose submedial line and lateral margin. Scutellum grey pollinose. Pleura yellow pollinose with some paler greyish areas. Metanotal callosity yellow pollinose; post-scutellar rim black with fine indistinct yellowish dusting. Halteres brown basally, yellowish centrally and apically.

Legs. Reddish orange. Coxae black, yellow-grey pollinose and yellow haired. Fore femur with apical margin black. Mid femur apically with anterior, dorsal and posterior third black. Hind femur with apical third black. Fore tibia with apical seventh black. Mid tibia with apical fourth black, also black sub-basally. Hind tibia with apical third black, also sub-basally. Tarsi and claws black. Pulvilli pale yellowish. Bristles on legs black, hairs a mixture of black and white.

Abdomen. Tergites 1-7 yellow pollinose with medial and sublateral semi-glossy black bands; yellow haired except along medial line, where hairs are black; lateral and apical corners with only slightly longer and stouter bristle-like hairs, except tergite 1 with 3-5 long, relatively stout bristles in lateral corners. Sternites 1-7 yellow pollinose, black laterally. Segment 8 black with a dull sheen. Terminalia (Figs 7, 8), black.

FEMALE. Similar to male and differing as follows:

Head. Height 0.6-0.7 width; width of frons at level of antennae 0.3-0.4 head width. Relative lengths of antennal segments, 1.3-1.5: 1.0: 1.8-2.1; arista 1.4-1.9.

Abdomen. Tergite 8, 1.5 as long as tergite 7; dull black with a yellow pollinose line on basal half. Tergal margins black.

DIMENSIONS. Body length excluding antennae, ♂ 21.5-22.6 mm, ♀ 14.0-23.0 mm; length of thorax, ♂ 6.0-6.2 mm, ♀ 3.6-6.5 mm; length of wing, ♂ 12.5-13.0 mm, ♀ 9.0-15.0 mm.

ACKNOWLEDGEMENTS

I would like to thank the Curators of the various Australian museums for the loan of material in their charge and Mr. R. G. Leeke, British Museum (Natural History), for examining the type of *A. blasio* and answering several queries regarding the species; also to Mr. A. F. Atkins for the presentation of material from Queensland; Mr. G. A. Holloway for identifying prey of *A. fasciata*.

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